United States Patent Application 09/721,975
Claims as of January 15, 2004

1-48 (canceled)

49 (currently amended): A method of inducing bone formation comprising transfecting osteogenic precursor cells with an isolated nucleic acid molecule comprising a nucleotide sequence encoding LIM mineralization protein, wherein said nucleic acid molecule is ~~SEQ ID NO: 2~~[[,]] SEQ ID NO: 22[[,]] or SEQ ID NO: 33.

50 (previously presented): The method of claim 49, wherein the isolated nucleic acid molecule is in a vector.

51 (previously presented): The method of claim 50, wherein the vector is an expression vector.

52 (previously presented): The method of claim 51, wherein the vector is a plasmid.

53 (previously presented): The method of claim 51, wherein the vector is a virus.

54 (previously presented): The method of claim 53, wherein the virus is an adenovirus.

55 (previously presented): The method of claim 53, wherein the virus is a retrovirus.

56 (previously presented): The method of claim 49, wherein the osteogenic precursor cells are transfected *ex vivo*.

57 (previously presented): The method of claim 49, wherein the osteogenic precursor cells are transfected *in vivo* by direct injection of the isolated nucleic acid molecule.

58 (previously presented): The method of claim 49, wherein the LIM mineralization protein is HLMP-1 (SEQ ID NO: 10).

59 (previously presented): The method of claim 49, wherein the LIM mineralization protein is HLMP-1s (SEQ ID NO: 34).

60 (withdrawn): The method of claim 49, wherein the LIM mineralization protein is RLMP (SEQ ID NO: 1).

61 (previously presented): The method of claim 57, wherein the isolated nucleic acid molecule is in a vector selected from the group consisting of a plasmid and a virus.

62 (previously presented): The method of claim 61, wherein the vector is a plasmid, which plasmid is directly injected into muscle tissue.

63 (currently amended): A method of stimulating production of an osteogenic soluble factor by an osteogenic cell, comprising:

(a) transfecting the osteogenic cell with an isolated nucleic acid molecule comprising a nucleotide sequence encoding LIM mineralization protein; and

(b) overexpressing the isolated nucleic acid molecule, wherein said nucleic acid molecule is ~~SEQ ID NO: 2~~[[,]] SEQ ID NO: 22[[,]] or SEQ ID NO: 33.